higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

Business and Functional Requirements
Document of a Messaging Solution

EY
Building a better
working world

Central Application Service

Business and Functional Requirements Document for a Messaging Solution

August 2017

Document History

Authors	Document Name	Version	Creation Date:
Dino Solomides	Technical Functional Requirements Messaging	V0.1.0	21/06/2017

Document Purpose:

The Business and Functional Requirement Document provides a description of the Messaging required for the Central Application Service (CAS) to meet the business objectives of the new CAS Entity.

Reviews Summary

Revision Date	Version	Author(s)	Comment
28/06/2017	V0.1.1	Bangi Magashula	Updated document content
29/06/2017	V0.2.0	Dino Solomides	Updated document content
14/07/2017	V0.2.1	Dino Solomides	Updated document with feedback comments and workshop notes
14/07/2017	V0.2.2	Stoffel Ellis	Review content and aligned the content
14/07/2017	V0.2.3	Melissa Gupta	Grammar and format review
17/07/2017	V0.3.0	Dino Solomides	Updated document content
20/07/2017	V0.3.1	Dino Solomides	The inclusion of BRS section of the document.
21/07/2017	V0.3.2	Stoffel Ellis	Reviewed BRS for clarity and content.
17/08/2017	V0.4.0	Dino Solomides	Updated document content
07/08/2017	V0.4.1	Dino Solomides	Address of external review by Dr Ann Braine, comments and feedback.
10/08/2017	V0.4.2	Dino Solomides	Address of external review by Chris Nel, comments and feedback.
23/08/2017	V0.5.0	Dino Solomides	Updated document content
23/08/2017	V0.5.1	Dino Solomides	Address of external review.
31/08/2017	V1.0.0	Stoffel Ellis	Quality Review, Document Baselined
29/09/2017	V2.0.0	Stoffel Ellis	Template changes and baselined

Approval Summary

Name	Role	Approval Date	Signature
Matthews Makgopela	DHET	08/12/2017	
Jean Skene	DHET	14/12/2017	
Dr Diane C Parker	DHET	12/01/2018	
Mr Firoz Patel	DHET	18/01/2018	

Table of Contents

Terms and abbreviations

The table below provides a central location for all terms and abbreviations used throughout this document.

Abbreviation	Meaning
BMS	Business Messaging Specification
BRD	Business Requirement Document
CAS	Central Application Service
DHET	Department of Higher Education and Training
Fax	Facsimile
FMS	Functional Messaging Specification
FRD	Functional Requirement Document
FRS	Functional Requirement Specifications
ICT	Information and Communication Technology
IM	Instant Messaging
IVR	Interactive Voice Response
PSET	Post School Education and Training
RTM	Requirements Traceability Matrix
SMS	Short Message Service
TOR	Terms of Reference

Table of Definitions

The table below provides a central location for all terms used throughout this document.

Term	Definition
Data source	Location where the data is stored such as databases.
Dynamic Message Content	Content that is automatically populated, appropriate for the type of message, which is retrieved from the relevant data source applicable for the context of the message. E.g. Name of the applicant or status to be communicated.
Information access rights	The level of authority an individual possesses to have access to sensitive data.
Message properties	The character length, inclusion of visuals (such as CAS logo on emails) or any other kinds of properties determined by CAS and the type of message.
Social Media Platform	Collaborative, publicly available systems that contain communications capabilities through the use of picture sharing and text. Examples are Facebook and Twitter.
Static Message Content	Message content that does not change such as email signatures.
System trigger	Automated execution of a defined function based on a system event.

1.   Introduction

The Central Application Service (CAS) must provide a national service to the Post School Education and Training (PSET) sector for an estimated annual customer base of approximately 600 000+ school leavers and other potential new applicants to the PSET sector. In order for the CAS to deliver an effective service, an effective messaging system needs to be established.

Messaging consists of three major areas of communication namely, SMS, Email and physical post. The need for sending and receiving communication is derived from either a user request or system triggers. The need for messaging focuses not only on internal but also on external communication requirements.

1.1   Purpose of this Business and Functional Requirements Specification

The purpose of this document is to describe the Business Requirement Specifications (BRS) and Functional Requirement Specifications (FRS) for a Messaging solution for the CAS.

These BRS and FRS will be used as the basis for the drafting of the Terms of Reference (TOR) specifications for the procurement of a software and hardware solution for the Messaging needs of the CAS. These specifications, together with the business rules described in the BRS, can also form the framework for procurement assessments of the proposed solutions.

1.2   Requirements priority rating criteria

The functional requirements have been summarised and ranked based on the following rating system.

Rating	Rating Criteria
M	This is a "must have" requirement as it is critical to the initial implementation of the proposed system: • Functionality must be in place for regulatory or operational reasons. • No manual work around is possible at the time of go-live for this requirement. • Delivers significant financial benefits or the operational risk is unacceptable if not addressed.
S	This is a "should have" requirement as the functionality is highly desirable to business users and is required to drive business benefits.
C	This is a "could have" requirement as the functionality could be important to business users but the benefits are unclear/marginal.
W	This is a "would like to have" requirement as the functionality is considered as a nice to have by the business users.
N/A	The requirement does not apply to Messaging. The requirement could be input from another source and therefore only a dependency.

higher education
& training
Department
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

EY
Building a better
working world

2. Messaging Business Requirements

The following requirements indicate the business needs of the CAS for a Messaging solution.

2.1 Assumptions

In describing the Business Requirement Specifications, the following assumptions have been made:

a. Social Media will not be used to communicate applicant specific information; and
b. Certain requirements are also applicable for internal communications.

2.2 Business Requirements Specification

Requirement Unique ID	BMS01		
Business Objective	Messaging system aims at creating an informed environment for the CAS both internally and externally through the form of relevant communications, using various methods of messaging.		
Business Rules	1. To be defined by DHET.		
Business Requirements	The Central Application Service must have the ability to effectively utilise a Messaging solution.	Priority Rating	Functional X-Reference
	The Central Application Service needs to be able to:		
	1. Communicate with applicants using e-mail/SMS/post messages to applicants using the least cost routing approach in selecting the appropriate communication medium.		FMS01
	2. Set up and maintain personalised automated messages via templates in line with CAS determined message content restrictions, which will be sent to applicants at user defined stages during the application approval process. These messages must be set up for all applicants or a cohort of applicants e.g. sending a communication to all applicants who have accepted an offer with their respective registration dates.		FMS01
	3. Send regular feedback to students at each stage of the application process and status changes.		FMS01
	4. Log and easily access all historic communications with applicants.		FMS01
	5. Integrate with social media platforms for monitoring and response to CAS concerned messages, posts or communications, be able to adapt to changes in the social media environment and to automatically respond on these platforms where appropriate.		FMS02
	6. Maintain the authenticity of messages through nonrepudiation principles and security measures such as encryption.		FMS01, FMS02
	7. Provide messaging capabilities for callers using the IVR system through integration.		FMS01
	8. Send messages in real time or schedule for sending in bulk.		FMS01
	9. Monitor the delivery status of messages where appropriate.		FMS01, FMS02
	10. Send messages that are created through free text and are printable.		FMS01

higher education & training

Department
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

EY
Building a better
working world

	11. Communicate with groups of recipients identified for a similar purpose.		**FMS01**
	12. Provide a front-end application for use by CAS staff for internal and external communications via Email (Email Client).		**FMS01**
Requirement Status (New/Changed)	This requirement is new.		
Functional Requirement Attributes	1. FMS01: SMS, Email and Physical Messaging; and 2. FMS02: Additional Messaging Requirements.		

3. Messaging Functional Requirements

The following functional requirements were identified for the CAS Messaging system.

3.1 SMS, Email and Postal Messaging

Functional Specification ID	FMS01	
Business Requirement ID	BMS01	
Functional Specification Name	SMS, Email and Postal Messaging	
Inputs/Pre-conditions	Need for system or user to communicate.	
Outputs/Post-conditions	SMS/Email sent or message printed for postage.	
Requirement Description	The system must have the ability to notify individuals via SMS, Email or physical letters in an approved manner upon user request or system triggers for both internal and external communications, where appropriate.	
Business Rules	To be defined by DHET.	
Functional Capabilities	The system must have the ability to:	
	1. Allow CAS users to set pre-approved message templates and define static and dynamic content, in line with the purpose of the message, for information received from institutions or CAS determined needs.	M
	2. Allow CAS users to update message content in line with CAS determined message content restrictions such as message context and properties, according to role based permissions.	M
	3. Retrieve mobile, email or postal address details from applicant's profile in the CAS database.	M
	4. Send messages individually asynchronous or in bulk (batch) to recipient's preferred contact details and contact method.	M
	5. Send messages at user requests or generated by system triggers based on events as defined in the workflow rules, or to a list of applicants draw by a routine or ad hoc report.	
	6. Integrate with alternative CAS workflow processes such as for the Call Centre and Clearing House requiring outbound, user or system triggered, messaging capabilities.	M
	7. Integrate with Interactive Voice Response (IVR) system for requests for application status and other standard information.	M
	8. Generate printable correspondence in the form of letters, in line with static and dynamic data in templates, to be sent as email attachment or printed in-house for sending via postal services.	M
	9. Keep a record of messages and details in a message log linked to an applicant in the CAS database in the event of queries or requests for messages to be resent.	M

higher education
& training
Department
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

EY
Building a better
working world

	10. Integrate with relevant data sources for the retrieval of dynamic data for messages.	M
	11. Send messages on the basis of least cost routing as defined within the system when appropriate.	M
	12. Monitor the delivery status of messages sent and to contact applicants in an alternative manner in the event of message delivery failure, where appropriate.	M
	13. Allow users to reset or modify system triggers, templates or content easily in the event of a process change. E.g. A new legislation requires additional communications, therefore the system must be able to easily cater for the additional messages to be sent for the affected process(s).	M
	14. Allow users to modify and format printable correspondence and to monitor the volumes sent for outsourced mailings.	M
	15. Allow users to create free text messages for communication on an ad hoc basis, according to role based permissions.	M
	16. Create recipient groups based on CAS structures and relevance, for appropriate internal and external correspondence.	M

3.2 Additional Messaging Considerations

Functional Specification ID	FMS02
Business Requirement ID	BMS01
Functional Specification Name	Additional Messaging Considerations
Inputs/Pre-conditions	Need for system and user to communicate.
Outputs/Post-conditions	Communication delivered successfully, in the required form, from or to the CAS.
Requirement Description	This requirement aims at addressing any further considerations for messaging for both internal and external messaging requirements not outlined in SMS, Email and Physical Messaging.
Business Rules	To be defined by DHET.
Functional Capabilities	The system must have the ability to:

higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

EY
Building a better
working world

	1.	Integrate with social media platforms for successful communication with applicants.	
	2.	Cater for changes to social media systems to maintain the effective use of these platforms.	
	3.	Integrate into social media for monitoring of communications to identify where CAS has been mentioned. e.g. Hashtags on twitter	
	4.	Automatically respond to references and messages on social media platforms, directed at CAS, with a standard message and where appropriate, log a call for following up.	
	5.	Support the use of a social media instant messaging platform for CAS communications and collaboration.	
	6.	Send and receive faxes via fax-to-email.	
	7.	Encrypt sensitive communication that is unlocked upon delivery to the correct recipient or by the recipient on receipt.	
	8.	Register applicants or users for subscripted communications, such as newsletters, and to also provide the option to opt out.	
	9.	Receive and queue inbound messages for appropriate handling by CAS.	

Appendix A – Non-Functional Requirements

The following are a list of the Non-Functional requirements for the Messaging solution that need to be present. Certain requirements contain estimates and may be subject to change upon establishment of the CAS and actual amount.

Requirement	Description
Access Control	Access control security that can be used to regulate who or what can view or use resources.
Security	Messages need to conform to the CAS determined security policy to enforce communications integrity and confidentiality requirements.
Availability	Operational during normal business hours.
	Operational after hours for processing requirements.
	Operational 24/7 for IVR information requests via self-service.
Usability	Easy to navigate, responsive and user-friendly.
Performance	SMS should be capable of being sent at a rate of 1000 – 2500 per hour.
	Emails should be capable of being sent at a rate of 800 – 1500 per hour dependent on Email size.
	Physical letters should be generated and produced at a rate of 250 – 1000 per hour. (Excluding delivery as determined by the CAS).
Scalability	The scalability required for the messaging solution will be required to accommodate for growth, without the disruption in service, in the following manner as outlined below: <table><tr><th>Phase</th><th>Growth Expected (per year)</th></tr><tr><td>Year 1 (Pilot Phase)</td><td>850 000 – 1 250 000 (initial)</td></tr><tr><td>Year 2 (All universities, some programmes)</td><td>100%</td></tr><tr><td>Year 3 (All universities, all programmes)</td><td>100%</td></tr><tr><td>Year 4 (FET Colleges join)</td><td>50%</td></tr><tr><td>Year 5 (SETAs join)</td><td>33%</td></tr></table>
Flexibility	Accommodate for adaptations that can occur in the form of configurations or software/hardware upgrades.
Resilience	Capability to recover quickly and continue operating even when there has been an equipment failure, power outage or other disruption.
Maintainability	Perform successful modification and repair actions to resolve system faults and maintain stable performance.
Documentation	Storage and retrieval of user manuals that explains how the solution operates or how to use it.
Reporting	Reporting capabilities on the operations of the solution in terms of the effectiveness and performance. Reporting should also be linked with the areas where monitoring has been identified, as seen below.
Monitoring	The capability to keep track of various system activities and performance. Specific requirements for monitoring focus: 1. Physical document communication creation; 2. Volumes of SMS and Email transferred; 3. Delivery status, where appropriate, of communications; 4. Free-text and template content creation.
Legal	Messages and communications should not contravene any legal requirements governing communications in South Africa.